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EXAMINER

ROTH, LAURA K

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2852

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/532,979	Applicant(s) HATORI ET AL.	
	Examiner Laura K. Roth	Art Unit 2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-26 and 28-52 is/are rejected.
- 7) ☒ Claim(s) 5 and 27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Priority

Acknowledgment is made of applicant's claim for foreign priority based on two applications filed in Japan on 8 July 2004 and on 20 July 2004. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "6" has been used to designate both a cleaning unit and a photoconductive layer. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top

margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 6a, 37, 112, 13r, 12r, 111f, 112f, 114, 12f, 27, 71e, 109b. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claims 6, 18, 48, 51 are objected to because of the following informalities: there is insufficient antecedent basis for the limitation: "the cleaning position determining member" in claim 6, there is insufficient antecedent basis for the limitation: "the toner" in claims 18 and 48, there is insufficient antecedent basis for the limitations: "the developing unit" and "the cleaning unit" in claim 50. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office is unable to ascertain the full metes and bounds of the invention. Claim 1 recites a process cartridge comprising a developing unit and claim 4 recites a developing agent uses a toner. It is unclear as to whether the toner is itself part of the invention, a separate invention usable with the process cartridge, or a process step in which no distinct steps are claimed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 6, 7, 18, 23, 25, 28, 29, 33-38, 41-43, 48, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Asano et al. (US 5,289,234).

Regarding claim 1, Asano et al. (US 5,289,234) teach a process cartridge (fig.9-11) comprising: a frame body (fig.9&10, #10) made up of at least first (fig.9-11, #101) and second (fig.9-11, #102) frame bodies that are movable relative to each other (compare fig.9 & 11) to form a space (fig.9&10); a frame body positioning member positioning the first and second frame bodies (fig.9, #103); a latent image bearing member (fig.11, #1), supported by the frame body (fig.10, #13/131), and replaceable via the space formed by the first and second frame bodies (see fig. 9 & 10); a developing unit (fig.9, #3) supplying a developing agent to the latent image bearing member; and a developing position determining member (fig.8, #141 engages with holes in ends of developer roller, see col.8, ln.46-50), disposed at a non-overlapping position relative to the frame body positioning member (fig.8, #10b-10d does not overlap #103), and positioning the developing unit with respect to the frame body (see col.8, ln.46-50).

Regarding claim 3, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a cleaning unit (fig.9, #5) cleaning residual toner on the latent image bearing member; and a cleaning position determining member (fig.8&9, #103), disposed

at a non-overlapping position relative to the frame body position determining member and the developing position determining member (see fig.8, #103 does not overlap #141/14), and positioning the cleaning unit with respect to the frame body (fig.9, #103 positions #5 with respect to #102).

Regarding claim 6, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a charging unit (fig.11&15, #2) uniformly charging the latent image bearing member, said charging unit being positioned (fig.15, positioned with relation to body via #242/232) with respect to the frame body at an non-overlapping position relative to the frame body position determining member, the developing position determining member and the cleaning position determining member (fig.15, #242 does not overlap location where cleaning member is joined which is the same as frame body position member and does not overlap axis of the developing roller).

Regarding claim 7, Asano et al. (US 5,289,234) teach a process cartridge wherein at least one of the latent image bearing member, the cleaning unit, the charging unit and the developing unit is replaced after removing the process cartridge from a main body of an image forming apparatus (fig.9-10, #1 capable of being attached/detached; col.8, ln.62-col.9, ln.1: drum is inserted, cartridge is closed, then put into printer, thus, it would be removed to be replaced).

Regarding claim 18, Asano et al. (US 5,289,234) teach a process cartridge further comprising: an accommodating part accommodating the toner or a newly supplied toner (fig.2, right hand part of #3).

Regarding claim 21, Asano et al. (US 5,289,234) teach an image forming apparatus (fig.2) for visualizing a latent image formed on a latent image bearing member into a toner image, comprising: at least one detachable process cartridge (fig.2, #1-3, #5-6) according to claim 1 (see rejection of claim 1), at least one of the latent image bearing member and the developing unit being replaceable with respect to the process cartridge (fig.9-11, #1 can be attached, detached and is therefore replaceable).

Regarding claim 23, Asano et al. (US 5,289,234) teach a process cartridge (fig.9-11) comprising: a frame body (fig.9&10, #10); a latent image bearing member (fig.11, #1) supported by the frame body (fig.10, #13/131); a developing unit supplying a toner to the latent image bearing member (fig.9, #31); a developing position determining member positioning the developing unit with respect to the frame body (fig.8, #141 engages with holes in ends of developer roller, see col.8, ln.46-50); a cleaning unit cleaning the toner on the latent image bearing member (fig.9, #5); and a cleaning position determining member (fig.9, hinge at #103), disposed at a non-overlapping position relative to the developing position determining member (fig.8, #103 does not overlap #141/14), positioning the cleaning unit with respect to the frame body.

Regarding claim 25, Asano et al. (US 5,289,234) teach a process cartridge wherein said frame body (fig.9&10, #10) made up of at least a first frame body (fig.9-11, #101) and a second frame body (fig.9-11, #102) that are movable relative to each other to form a space (see fig.9-11), said latent image bearing member (fig.11, #1) is supported by the frame body (fig.10, #13/131) and is replaceable via the space formed by the first and second frame bodies (see fig.9-10), and further comprising: a frame

body positioning member (fig.9, #103), disposed at a non-overlapping position relative to the developing position determining member (fig.8, #103 does not overlap #141/14), and positioning the first and second frame bodies.

Regarding claim 28, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a charging unit (fig.11&15, #2) uniformly charging the latent image bearing member, said charging unit being positioned (fig.15, #2 positioned via #232/242) with respect to the frame body at a non-overlapping position relative to the frame body position determining member, the developing position determining member and the cleaning position determining member (fig.15, #242 does not overlap location where cleaning member is joined which is the same as frame body position member and does not overlap axis of the developing roller).

Regarding claim 29, Asano et al. (US 5,289,234) teach an image forming apparatus for visualizing a latent image formed on a latent image bearing member into a toner image (fig.2), comprising: at least one detachable process cartridge (fig.2, #1-3, 5-6) according to claim 33 (see rejection of claim 33), at least one of the latent image bearing member, the developing unit and the cleaning unit being replaceable with respect to the process cartridge (fig.9-11, #1 can be attached, detached and is therefore replaceable).

Regarding claim 33, Asano et al. (US 5,289,234) teach a process cartridge (fig.2, #1-3, and 5-6) configured to be detachable with respect to an image forming apparatus (col.3, ln.63-64), comprising: a frame body (fig.11, #102/101); a latent image bearing member supported by the frame body (fig.11, #1); and at least one process unit

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provided integrally with the latent image bearing member and supported by the frame body (fig.11, #2), the latent image bearing member (fig.9 and 10) and the at least one process unit (fig.14 and 15) being independently replaceable.

Regarding claim 34, Asano et al. (US 5,289,234) teach a process cartridge wherein the latent image bearing member and the at least one process unit are replaceable without requiring other process units to be removed (see fig.9-10 and fig.14-15, respectively).

Regarding claim 35, Asano et al. (US 5,289,234) teach a process cartridge wherein the latent image bearing member and the at least one process unit is replaced after removing the process cartridge from the image forming apparatus (col.8, ln.62-col.9, ln.1: drum is inserted, cartridge is closed, then put into printer, thus, it would be removed; col.col.10, ln.6-ln.27: brush is installed on cartridge, then cartridge is inserted into printer, thus, it would be removed).

Regarding claim 36, Asano et al. (US 5,289,234) teach a process cartridge wherein the latent image bearing member is removable from the frame body without requiring the at least one process unit to be removed from the frame body (see fig.9, #2 still in place).

Regarding claim 37, Asano et al. (US 5,289,234) teach a process cartridge comprising: a cleaning unit forming one process unit (fig.9, #5), wherein the latent image bearing member is removed from the frame body after rotating the cleaning unit (see fig.9-11).

Regarding claim 38, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a cleaning position determining member positioning the cleaning unit with respect to the frame body (fig.9, hinge point #103).

Regarding claim 41, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a charging unit forming one process unit (fig.15, #2), wherein said frame body includes a recess that receives the charging unit (fig.14 & 15, #241 in #100).

Regarding claim 42, Asano et al. (US 5,289,234) teach a process cartridge further comprising: a developing unit (fig.8, #31); and a developing positioning member positioning the developing unit with respect to the frame body (fig.8, #141 engages with holes in ends of developer roller, see col.8, ln.46-50).

Regarding claim 43, Asano et al. (US 5,289,234) teach a process cartridge wherein said developing position determining member positions a developing reference shaft of the developing unit with respect to a hole in the frame body forming a bearing (fig.8, projection #141 positions the reference shaft or axis of roller #31 with respect to holes #10c and bears #31).

Regarding claim 48, Asano et al. (US 5,289,234) teach a process cartridge further comprising: an accommodating part accommodating the toner or a newly supplied toner (fig.2, right hand side of #3).

Regarding claim 51, Asano et al. (US 5,289,234) teach an image forming apparatus for visualizing a latent image formed on a latent image bearing member into a toner image (fig.2), comprising: at least one detachable process cartridge (fig.2, #1-3, 5-6) according to claim 33 (see rejection of claim 33), at least one of the latent image

bearing member, the developing unit and the cleaning unit being replaceable with respect to the process cartridge (fig.9-11, #1 can be attached, detached and is therefore replaceable).

Note: the abstract of Asano et al. (US 5,289,234) states "At least one of the photosensitive member and the charging brush is detachable..." Thus, while the examples in Asano et al. (US 5,289,234) only show two distinct embodiments with only one replaceable part, Asano et al. (US 5,289,234) allows for both to be replaceable in the same imaging cartridge.

Claims 1, 3, 4, 6, 7, 21, 23, 25, 26, 28, 31-33, 35, 41, 42 and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirabayashi et al. (US 4,386,838).

Regarding claim 1, Hirabayashi et al. (US 4,386,838) teach a process cartridge (fig.2, #B) comprising: a frame body (fig.4) made up of at least first (fig.4, #24A) and second (fig.4, #25A) frame bodies that are movable relative to each other to form a space (fig.4, elongated holes at right-hand ends of spacer bars allow the two to move relative to one another); a frame body positioning member positioning the first and second frame bodies (fig.4, unlabelled spacer bars with elongated holes in the right-hand ends); a latent image bearing member (fig.3, #20), supported by the frame body (fig.4, #20 supported by #24A/25A), and replaceable via the space formed by the first and second frame bodies (col.3, ln.34-36; fig.4, for mounting situation to function, frames #24A & #25A must be shifted apart for installation/removal of the photosensitive drum); a developing unit (fig.3, #36) supplying a developing agent to the latent image

bearing member; and a developing position determining member (fig.3, #30a/30b; or fig.4, #44/45), disposed at a non-overlapping position relative to the frame body positioning member (fig.4, #44/45 does not overlap the unlabelled spacer bars), and positioning the developing unit with respect to the frame body (see col.3, ln.36+).

Regarding claim 3, Hirabayashi et al. (US 4,386,838) teach a process cartridge further comprising: a cleaning unit (fig.3, #39) cleaning residual toner on the latent image bearing member; and a cleaning position determining member (fig.3, #33a/33b; or fig.4, #44/45), disposed at a non-overlapping position relative to the frame body position determining member and the developing position determining member (see fig.4, #44/45 does not overlap the unlabelled spacer bars), and positioning the cleaning unit with respect to the frame body (see col.3, ln.36+).

Regarding claim 4, Hirabayashi et al. (US 4,386,838) teach a process cartridge further comprising: a cleaning unit (fig.3, #39) cleaning residual toner on the latent image bearing member; and a cleaning position determining member positioning the cleaning unit with respect to the frame body (see fig.4, #44/45 does not overlap the unlabelled spacer bars), said cleaning unit being replaceable via the space formed by the first and second frame bodies (col.3, ln.34+; fig.4, for mounting situation to function, frames #24A & #25A must be shifted apart for installation/removal of the photosensitive drum and all of the peripheral devices).

Regarding claim 6, Hirabayashi et al. (US 4,386,838) teach a process cartridge further comprising: a charging unit (fig.3, #35) uniformly charging the latent image bearing member, said charging unit being positioned with respect to the frame body

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(fig.3, positioned with relation to frame #24/25 via #29a/29b or via fig.4, #44/45) at a non-overlapping position relative to the frame body position determining member (fig.4, #44/45 not overlapping with unlabelled spacer bars), the developing position determining member and the cleaning position determining member (fig.3, #29a/29b does not overlap #33a/33b nor #30a/30b).

Regarding claim 7, Hirabayashi et al. (US 4,386,838) teach a process cartridge wherein at least one of the latent image bearing member, the cleaning unit, the charging unit and the developing unit is replaced after removing the process cartridge from a main body of an image forming apparatus (as seen in fig.3, all can be removed/replaced while cartridge #B is outside of machine #A).

Regarding claim 21, Hirabayashi et al. (US 4,386,838) teach an image forming apparatus (fig.2, #A) for visualizing a latent image formed on a latent image bearing member into a toner image, comprising: at least one detachable process cartridge (fig.2, #B) according to claim 1 (see rejection of claim 1), at least one of the latent image bearing member and the developing unit being replaceable with respect to the process cartridge (fig.3, #39, #35, and #36 can be attached, detached and is therefore replaceable).

Regarding claim 23, Hirabayashi et al. (US 4,386,838) teach a process cartridge (fig.9-11) comprising: a frame body (fig.4); a latent image bearing member (fig.3-4, #20) supported by the frame body (fig.3-4, #20 supported by #24/25); a developing unit supplying a toner to the latent image bearing member (fig.3, #36); a developing position determining member positioning the developing unit with respect to the frame body

(fig.3, #30a/30b or fig.4, #44/45); a cleaning unit cleaning the toner on the latent image bearing member (fig.3, #39); and a cleaning position determining member (fig.3, #33a/33b or fig.4, #44/45), disposed at a non-overlapping position relative to the developing position determining member (fig.3-4, the two positioning units do not overlap), positioning the cleaning unit with respect to the frame body.

Regarding claim 25, Hirabayashi et al. (US 4,386,838) teach a process cartridge wherein said frame body (fig.4) made up of at least a first frame body (fig.4, #24A) and a second frame body (fig.4, #25A) that are movable relative to each other to form a space (col.3, ln.34-36; fig.4, for mounting situation to function, frames #24A & #25A must be shifted apart for installation/removal of the photosensitive drum), said latent image bearing member (fig.3-4, #20) is supported by the frame body (fig.3-4, #20 supported by #24/25) and is replaceable via the space formed by the first and second frame bodies (col.3, ln.34-36; fig.4, for mounting situation to function, frames #24A & #25A must be shifted apart for installation/removal of the photosensitive drum), and further comprising: a frame body positioning member (fig.4, unlabelled spacer bars with elongated holes in the right-hand ends), disposed at a non-overlapping position relative to the developing position determining member (fig.4, the unlabelled spacer bars do not overlap #44/45), and positioning the first and second frame bodies.

Regarding claim 26, Hirabayashi et al. (US 4,386,838) teach a process cartridge wherein said cleaning unit is replaceable by removing the cleaning position determining member after the first and second frame bodies are moved relative to each other to form the space (col.3, ln.34+; fig.4, for mounting situation to function, frames #24A &

#25A must be shifted apart for installation/removal of the photosensitive drum and the positioning members must be removed from holes).

Regarding claim 28, Hirabayashi et al. (US 4,386,838) teach a process cartridge further comprising: a charging unit (fig.3, #35) uniformly charging the latent image bearing member, said charging unit being positioned (fig.3, #35 positioned via #29a/29b; fig.4, #44/45) with respect to the frame body at a non-overlapping position relative to the frame body position determining member, the developing position determining member and the cleaning position determining member (fig.3-4, #29a/29b does not overlap the other position determining members).

Regarding claim 31, Hirabayashi et al. (US 4,386,838) teach a process cartridge (fig.2, #B) configured to be detachable with respect to an image forming apparatus (fig.2, #A), comprising: a latent image bearing member (fig.2, #20); and at least three process units (fig.2, #39, #35, and #36) provided integrally with the latent image bearing member, each of the latent image bearing member and the process units being independently replaceable (fig.3, #39, #35, #36, and #20 are all capable of being attached and detached, thus, accurately replaceable).

Regarding claim 32, Hirabayashi et al. (US 4,386,838) teach a process cartridge wherein the three process units include a cleaning unit (fig.2-3, #39), a developing unit (fig.2-3, #35) and a charging unit (fig.2-3, #36).

Regarding claim 33, Hirabayashi et al. (US 4,386,838) teach a process cartridge (fig.2, #B) configured to be detachable with respect to an image forming apparatus (col.2, ln.50-55), comprising: a frame body (fig.4, #24A/25A); a latent image bearing

member supported by the frame body (fig.3-4, #20 supported by #24A/25A); and at least one process unit provided integrally with the latent image bearing member and supported by the frame body (fig.3, #35, #36, or #39), the latent image bearing member and the at least one process unit being independently replaceable (fig.3).

Regarding claim 35, Hirabayashi et al. (US 4,386,838) teach a process cartridge wherein the latent image bearing member and the at least one process unit is replaced after removing the process cartridge from the image forming apparatus (fig.3, photosensitive drum and process units are attached/detached when cartridge #B is outside of #A).

Regarding claim 41, Hirabayashi et al. (US 4,386,838) teach a process cartridge further comprising: a charging unit forming one process unit (fig.3, #29a/29b of fig.4, #44/45), wherein said frame body includes a recess that receives the charging unit (fig.4, top holes of #44/45).

Regarding claim 42, Hirabayashi et al. (US 4,386,838) teach a process cartridge further comprising: a developing unit (fig.3, #36); and a developing positioning member positioning the developing unit with respect to the frame body (fig.3, #30a/30b of fig.4, #44/45).

Regarding claim 51, Hirabayashi et al. (US 4,386,838) teach an image forming apparatus for visualizing a latent image formed on a latent image bearing member into a toner image (fig.2, #A), comprising: at least one detachable process cartridge (fig.2, #B) according to claim 33 (see rejection of claim 33), at least one of the latent image bearing member, the developing unit and the cleaning unit being replaceable with

respect to the process cartridge (fig.3, all units can be attached, detached and are therefore replaceable).

Claims 31-33, 41, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Surti (US 5,142,322).

Regarding claim 31, Surti (US 5,142,322) teaches a process cartridge (fig.2) configured to be detachable with respect to an image forming apparatus (fig.1), comprising: a latent image bearing member (fig.6, #16); and at least three process units (fig.6, #22, #26, and #20) provided integrally with the latent image bearing member, each of the latent image bearing member and the process units being independently replaceable (col.1, ln.53-62).

Regarding claim 32, Surti (US 5,142,322) teaches a process cartridge wherein the three process units include a cleaning unit (fig.6, #26), a developing unit (fig.6, #22) and a charging unit (fig.6, #20).

Regarding claim 33, Surti (US 5,142,322) teaches a process cartridge (fig.2) configured to be detachable with respect to an image forming apparatus (fig.1), comprising: a frame body (fig.6 & 14, #28); a latent image bearing member supported by the frame body (fig.14, #16 supported by #66 and #45); and at least one process unit provided integrally with the latent image bearing member and supported by the frame body (fig.6, #22, #26, or #20 supported within #28), the latent image bearing member and the at least one process unit being independently replaceable (col.1, ln.53-62).

Regarding claim 41, Surti (US 5,142,322) teaches a process cartridge further comprising: a charging unit forming one process unit (fig.6 or 14, #20), wherein said frame body includes a recess that receives the charging unit (fig.6, #51 has a recess for #20 or fig.14, #20 located in recess of #28).

Regarding claim 48, Surti (US 5,142,322) teaches a process cartridge further comprising: an accommodating part accommodating the toner or a newly supplied toner (fig.1, #24).

Regarding claim 51, Surti (US 5,142,322) teaches an image forming apparatus for visualizing a latent image formed on a latent image bearing member into a toner image (fig.1), comprising: at least one detachable process cartridge (fig.2) according to claim 33 (see rejection of claim 33), at least one of the latent image bearing member, the developing unit and the cleaning unit being replaceable with respect to the process cartridge (col.1, ln.53-62).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Noda et al. (US Pub. 2002/0122677).

Asano et al. (US 5,289,234) teach all of the limitations of claims 1 and 23, upon which claims 2 and 24 depend; additionally, Asano et al. (US 5,289,234) teach a process cartridge wherein said developing unit comprises a developing agent bearing member transporting the developing agent (fig.8, #31) and said developing position determining member comprises a positioning member positioning the latent image bearing member and the developing agent bearing member (fig.8, #14 supports #31 via #141 and also supports #1 via #142, positioning #31 and #1 together).

However, Asano et al. (US 5,289,234) fail to teach a magnet group inside the developing roller or an angular positioning member.

Regarding claim 2 and 24, Noda et al. (US Pub. 2002/0122677) teach a developing unit with a developing agent bearing member (fig.17, #122) and a magnet group provided inside the developing agent bearing member (fig.17, #125a,c,d,e), and having a predetermined main pole direction (fig.18A: main pole direction is to the left in the figure), and an angular positioning member (fig.17, #140) determining the main pole direction of the magnet group with respect to the latent image bearing member (fig.18A&B: relative positions determined by the angular positioning member).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the developing roller of Asano et al. (US 5,289,234) with a magnetic grouping, pole and angular positioning member as in Noda et al. (US Pub. 2002/0122677) to accurately restrict the thickness of a toner layer on the developer delivering member without imparting undue stresses to the developer (para.0029) by

restricting it without contact (para.0269, ln.16-17) and by preventing it from being delivered during non-development (para.0293).

Claims 8, 9, 44, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Ebata et al. (US 5,023,660).

Claims 8, 9, 44, and 45 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al. (US 4,386,838) in view of Ebata et al. (US 5,023,660).

Both Asano et al. (US 5,289,234) and Hirabayashi et al. (US 4,386,838) teach all of the limitations of claims 1 and 33 upon which claims 8, 9, 44, and 45 depend.

However, both references fail to teach receiving a main body driving shaft or a hole in the cartridge wall to receive said shaft.

Regarding claim 8, Ebata et al. (US 5,023,660) teach a process cartridge (fig.2, #3) with a latent image bearing member (fig.2, #1), wherein the latent image bearing member is inserted with a driving shaft (fig.1-2, #4) provided in a main body of an image forming apparatus (col.3, ln.54-55).

Regarding claim 9, Ebata et al. (US 5,023,660) teach a process cartridge (fig.2, #3) with a frame body (fig.2, #3) and with a latent image bearing member (fig.2, #1), wherein the frame body has a hole part for receiving the driving shaft (fig.1, #3a).

Regarding claim 44, Ebata et al. (US 5,023,660) teach a process cartridge (fig.2, #3) with a latent image bearing member (fig.2, #1), wherein said latent image bearing

member receives a driving shaft of the image forming apparatus when the process cartridge is loaded into the image forming apparatus (col.4, ln.20-25).

Regarding claim 45, Ebata et al. (US 5,023,660) teach a process cartridge (fig.2, #3) with a frame body (fig.2, #3) and with a latent image bearing member (fig.2, #1), wherein said frame body includes a hole forming a bearing (fig.1, #3a) and receiving the driving shaft of the image forming apparatus (fig.2).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify any of the primary references with the inserted image forming apparatus main body driving shaft and cartridge wall hole of Ebata et al. (US 5,023,660) to provide a drive transmission that allows the drive mechanism and grounding contacts to be provided inside the drum and cartridge to allow the cartridge parts to be better protected when handling the cartridge (col.2, ln.30-38).

Claims 10-12 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kinoshita et al. (US 5,404,203).

Claims 10-12 and 46-47 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al. (US 4,386,838) in view of Kinoshita et al. (US 5,404,203).

Both Asano et al. (US 5,289,234) and Hirabayashi et al. (US 4,386,838) teach all of the limitations of claims 1 and 33 upon which claims 10-12 and 46-47 depend.

However, both references fail to teach the use of a discharge unit and a detection unit.

Regarding claim 10, Kinoshita et al. (US 5,404,203) teach an image forming apparatus comprising a discharge unit (fig.4, #55) and a detection unit (fig.4, #44, #212, #210, and #213 not shown; col.5, ln.47-55).

Regarding claim 11, Kinoshita et al. (US 5,404,203) teach an image forming apparatus wherein said discharge unit comprises an electroluminescence lamp (col.6, ln.58+: lamp 55 emits light).

Regarding claim 12, Kinoshita et al. (US 5,404,203) teach an image forming apparatus wherein said detection unit comprises a potential sensor detecting a potential of the latent image bearing member, a toner density sensor detecting an amount of toner on the latent image bearing member, and a temperature and humidity sensor detecting a temperature and a humidity within the vicinity of the image bearing member (col.5, ln.47-55).

Regarding claim 46, Kinoshita et al. (US 5,404,203) teach an image forming apparatus further comprising: a discharge unit (fig.4, #55); and a detection unit (fig.4, #44, #212, #210, and #213 not shown; col.5, ln.47-55).

Regarding claim 47, Kinoshita et al. (US 5,404,203) teach an image forming apparatus wherein said detection unit comprises a potential sensor detecting a potential of the latent image bearing member, a toner density sensor detecting an amount of toner on the latent image bearing member, and a temperature and humidity sensor

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detecting a temperature and a humidity within the vicinity of the image bearing member (col.5, ln.47-55).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify any of the primary references by adding a discharge unit and a detection unit as proposed by Kinoshita et al. (US 5,404,203) to perform an AIDC control to determine image forming conditions to keep image density stable while taking into account the fact that environmental factors and wear on the photoconductor can change the necessary density settings (col.1, ln.14-28). It would have been further obvious to one of ordinary skill in the art at the time of invention to provide these units within the frame of the process cartridge of the primary references since the detection results must be reading conditions in the immediate vicinity of the photosensitive drum for the control to function.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Miyabe et al. (US 5,950,047).

Claim 13 is also rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al. (US 4,386,838) in view of Miyabe et al. (US 5,950,047).

Both Asano et al. (US 5,289,234) and Hirabayashi et al. (US 4,386,838) teach all of the limitations of claim 1 upon which claim 13 depends.

However, both references fail to teach the locations of the electrical contacts for the cartridge.

Regarding claim 13, Miyabe et al. (US 5,950,047) teach a process cartridge wherein electrical wirings for external connection are connectable via one location of the process cartridge (col.2, ln.39-46).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the cartridges of either of the primary references with the electrical connection of Miyabe et al. (US 5,950,047) in order to provide a process cartridge with shorter wiring length and to avoid electrical interference between multiple contact locations (col.2, ln.5-12).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Ojima et al. (US Pub. 2004/0191663).

Claims 14 and 15 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al. (US 4,386,838) in view of Ojima et al. (US Pub. 2004/0191663).

Both Asano et al. (US 5,289,234) and Hirabayashi et al. (US 4,386,838) teach all of the limitations of claim 1 upon which claims 14 and 15 depend.

However, both references fail to teach the use of a toner with the specific properties listed in claims 14 and 15.

Regarding claim 14, Ojima et al. (US Pub. 2004/0191663) teach an image forming apparatus using a toner having an average circularity in a range of 0.93 to 1.00 (para.0015: ranges from 0.94 to 0.98).

Regarding claim 15, Ojima et al. (US Pub. 2004/0191663) teach an image forming apparatus wherein the toner has a ratio of volume average particle size and a number average particle size in a range of 1.05 to 1.40 (para.0014: range of 1.10 to 1.15).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify either of the primary references to incorporate the toner of Ojima et al. (US Pub. 2004/0191663) in order to effectively prevent the generation of image irregularities during an endurance printing process (para.0014 & 0015).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Ojima et al. (US Pub. 2004/0191663) as applied to claim 14, and further in view of Yamashiro et al. (US 5,328,795).

Claim 16 is also rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al. (US 4,386,838) in view of Ojima et al. (US Pub. 2004/0191663) as applied to claim 14, and further in view of Yamashiro et al. (US 5,328,795).

The limitations of claim 14 are met by the combination as recited above.

However, both references fail to teach the use of a toner with the specific properties listed in claim 16.

Regarding claim 16, Yamashiro et al. (US 5,328,795) teach a toner for use in electrophotography wherein the toner is made up of roughly spherical particles with a ratio r_2/r_1 of a minor axis r_2 and a major axis r_1 in a range of 0.5 to 1.0, a ratio r_3/r_2 of a thickness r_3 and the minor axis r_2 in a range of 0.7 to 1.0, and satisfying a relationship

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$r_1 \geq r_2 \geq r_3$. In Yamashiro et al. (US 5,328,795), col.4, ln.31-36, the major axis (r_1) can be 3-30 μm , the minor axis (r_2) can be 1-25 μm , and the flatness is less than 0.5. The flatness is defined as: $[2 \times (\text{thickness})] / [\text{major axis} + \text{minor axis}]$ (col.4, ln.34-36). If the equation:

$$0.5 = \frac{(2 \times \text{thickness})}{(\text{major axis} + \text{minor axis})}$$

is manipulated with both the major+minor values of 3+1 and 30+25, the thickness (r_3) works out to be in a range from 1 to 13.75. Taking the lowest and highest set of all the ranges, $r_2/r_1 - \sim 0.33$ to ~ 0.83 and $r_3/r_2 - \sim 0.55$ to ~ 1 . Also, the values of r_1 , r_2 , and r_3 , satisfy the inequality $r_1 \geq r_2 \geq r_3$.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the toner of the combination that satisfies claim 14, by forming it to have the shape and major/minor axis and thickness ratios as seen in Yamashiro et al. (US 5,328,795) in order to improve "blade cleanability," prevent the toner particles from entering under the blade when the blade scrapes, and prevent toner particles from remaining on the drum after cleaning (col.2, ln.15-32; col.3, ln.25-28).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Ojima et al. (US Pub. 2004/0191663) as applied to claim 14, and further in view of Inoue et al. (JP Pub. 2000-172015).

Claim 17 is also rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al. (US 4,386,838) in view of Ojima et al. (US Pub. 2004/0191663) as applied to claim 14, and further in view of Inoue et al. (JP Pub. 2000-172015).

The limitations of claim 14 are met by the combination as recited above.

However, both references fail to teach the use of a toner with the specific properties and made by a process as listed in claim 17.

Regarding claim 17, Inoue et al. (JP Pub. 2000-172015) teach a toner consisting of a polyester having functional groups including nitrogen atoms, a polyester, a colorant and a releasing agent (abstract, SOLUTION).

It would have been obvious to one of ordinary skill in the art at the time of invention to use a toner of this composition in conjunction with the process cartridge of the above recited combination to provide a toner that has a long service life, and excellent color mixability, glossiness and anti-offsetting property (abstract, PROBLEM TO BE SOLVED).

Additionally, claim 17 recites a product made by the method of a cross-linking reaction and/or an extension reaction within an aqueous medium, the toner of Inoue et al. (JP Pub. 2000-172015) could be made by such a process and the limitations of claim 17 are therefore met by Inoue et al. (JP Pub. 2000-172015), see *In re Thorpe*.

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was

Claims 19, 20, 22, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Keen (US 4,816,877).

Claims 19, 20, 22, and 30 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al. (US 4,386,838) in view of Keen (US 4,816,877).

Both Asano et al. (US 5,289,234) and Hirabayashi et al. (US 4,386,838) teach all of the limitations of claim 1 and 23 upon which claims 19, 20, 22, and 30 depend.

However, both references fail to teach refilling or resupplying toner to the cartridge.

Regarding claim 19, Keen (US 4,816,877) teaches a process cartridge which is reusable by receiving a supply of toner (col.1, ln.35-43).

Regarding claims 20, 22 and 30, Keen (US 4,816,877) teaches a process cartridge further comprising: an accommodating part accommodating a supplied toner (col.1, ln.35-43).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify any of the primary references with a refilling hole and the ability for the user to refill toner into an accommodating portion, as in Keen (US 4,816,877), in order to reduce cost to the user by preventing the necessity of replacing the entire cartridge, or paying a recycling center to refill it when only the toner is consumed (col.1, ln.23-27).

Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Kosuge (US Pub. 2003/004201).

Asano et al. (US 5,289,234) teach all of the limitations of claims 33 and 37 upon which claims 39 and 40 depend and further teach the cleaning unit comprising a cleaning blade as in claim 40 (fig.2, scraping device that is part of #5 contacting #1).

However, the reference fails to teach the use of a coating mechanism.

Regarding claim 39, Kosuge (US Pub. 2003/004201) teach a cleaning unit (fig.1, #8-10) wherein said cleaning unit comprises a coating mechanism including a coating roller (fig.1, #8) and a lubricant body (fig.1, #10), said coating mechanism coating a lubricant on the latent image bearing member (para.0010, ln.8-10).

Regarding claim 40, Kosuge (US Pub. 2003/004201) teach a cleaning unit wherein said cleaning unit comprises a cleaning blade (fig.1, #9), and said lubricant body is replaceable (para.0008, ln.3-5: if applying lubricant onto a photoreceptor, replacement is required, therefore the lubricant of this system is also replaceable).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the cleaning device of Asano et al. (US 5,289,234) with the lubricant coating device of Kosuge (US Pub. 2003/004201) to prevent toner from adhering to the surface of the photosensitive drum by applying lubricant to decrease the surface energy of the photosensitive drum (para.0007, ln.1-5).

Claims 49, 50 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 5,289,234) in view of Keen (US 4,816,877).

Claims 49, 50 and 52 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi et al. (US 4,386,838) in view of Keen (US 4,816,877).

Claims 49, 50 and 52 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Surti (US 5,142,322) in view of Ojima et al. (US Pub. 2004/0191663).

Asano et al. (US 5,289,234), Hirabayashi et al. (US 4,386,838), and Surti (US 5,142,322) teach all of the limitations of claim 1 upon which claims 49, 50, and 52 depend.

However, both references fail to teach refilling or resupplying toner to the cartridge.

Regarding claim 49, Keen (US 4,816,877) teaches a process cartridge which is reusable by receiving a supply of toner (col.1, ln.35-43).

Regarding claims 50, and 52, Keen (US 4,816,877) teaches a process cartridge further comprising: an accommodating part accommodating a supplied toner (col.1, ln.35-43).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify any of the primary references with a refilling hole and the ability for the user to refill toner into an accommodating portion, as in Keen (US 4,816,877), in order to reduce cost to the user by preventing the necessity of replacing the entire cartridge, or paying a recycling center to refill it when only the toner is consumed (col.1, ln.23-27).

Allowable Subject Matter

Claims 5 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

- Prior art does not disclose or suggest the claimed “cleaning position determining member comprises a blade positioning member positioning the cleaning blade with respect to the frame body” and “said cleaning blade, said bias roller and said recovery roller are independently replaceable” in combination with the remaining claim elements as set forth in claims 5 and 27.

Contact Information

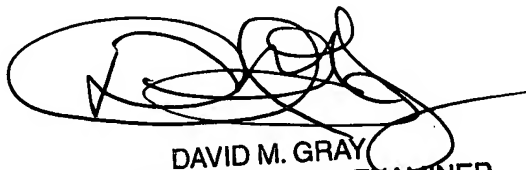
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura K. Roth whose telephone number is (571)272-2154. The examiner can normally be reached on Monday-Friday, 7:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571)272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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LKR
8/16/2006



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